

INDIAN IMMUNOHEMATOLOGY INITIATIVE

CASE OF THE MONTH: February 2009

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History: This 27 year old man with end stage renal disease has received multiple transfusions but none in the past 3 months. He recently moved here from another state.

ABO and Rh Typing

<A	<B	A1 cells	B cells	6% alb	Anti-D	Anti-D/AHG	CCC	Interp
0	0	4+	4+		4+			

Antibody Detection Test (“Screen”) by gel column agglutination

	Gel
OI	3+
OII	4+

Direct Antiglobulin Test

	Poly	IgG	Anti-C3
AHG	0		
5' incub.	0		
CCC	2+		

Initial Panel

Lot #VRA112	Rh system	Kell				Duffy		Kidd	Xg	Lewis	MNSs				P	Lutheran	Other															
Cell	Rh	D	C	E	c	e	V	K	k	Kp ^a	Kp ^b	Js ^a	Js ^b	Fy ^a	Fy ^b	Jk ^a	Jk ^b	Xg ^a	Le ^a	Le ^b	S	s	M	N	P1	Lu ^a	Lu ^b	Typings	Cell	Gel		
1	R1wR1	+	+	0	0	+	0	0	+	0	+	0	+	0	+	+	+	+	0	0	+	0	+	+	+	0	+	C ^w	1	0		
2	R1R1	+	+	0	0	+	0	0	+	0	+	0	+	+	+	0	+	+	0	0	+	0	+	0	+s	0	+		2	0		
3	R2R2	+	0	+	+	0	0	0	+	0	+	0	+	0	+	0	+	+	0	+	+	+	+	0	+	0	+		3	4+		
4	Ror	+	0	0	+	+	+	0	+	0	+	0	+	0	0	+	+	+	0	+	0	+	0	+	+	0	+		4	2+		
5	r'r	0	+	0	+	+	0	0	+	0	+	0	+	+	0	+	0	0	0	+	0	+	0	+	0	0	+		5	2+		
6	r''r	0	0	+	+	+	0	0	+	0	+	0	+	+	0	+	0	+	+	0	0	+	+	0	+	0	+		6	3+		
7	rr	0	0	0	+	+	0	+	+	0	+	0	+	0	+	+	0	0	0	0	+	+	+	+	0	0	+		7	3+		
8	rr	0	0	0	+	+	0	0	+	0	+	0	+	0	+	+	+	+	0	+	0	+	0	+	0	0	+		8	3+		
9	rr	0	0	0	+	+	0	+	+	0	+	0	+	+	0	0	+	+	0	0	+	+	+	0	+	0	+		9	3+		
10	rr	0	0	0	+	+	0	0	+	0	+	0	+	+	0	0	+	+	0	0	+	+	+	0	+	+	+		10	3+		
11	R1R1	+	+	0	0	+	0	+	+	0	+	0	+	0	+	+	0	0	+	0	0	+	+	0	+	0	+		11	3+		
Patient																												AC	0			

Antibody screening cells phenotype

Lot #VS169	Rh system	Kell				Duffy		Kidd	Xg	Lewis	MNSs				P	Lutheran	Other														
Cell	Rh	D	C	E	c	e	V	K	k	Kp ^a	Kp ^b	Js ^a	Js ^b	Fy ^a	Fy ^b	Jk ^a	Jk ^b	Xg ^a	Le ^a	Le ^b	S	s	M	N	P1	Lu ^a	Lu ^b	Typings	Gel		
OI	R1R1	+	+	0	0	+	0	+	+	0	+	0	+	+	0	+	+	+	0	+	+	+	+	+	+s	0	+		3+		
OII	R2R2	+	0	+	+	0	0	0	+	0	+	0	+	+	+	+	0	0	+	0	0	+	0	+	+	0	+		4+		

Question:

1. What alloantibody appears to be present? Does this seem to be the only antibody present? Why? What would be your next option for testing?

Selected cells

Lot #VRB111		Rh system						Kell						Duffy		Kidd		Xg	Lewis		MNSs				P	Lutheran		Other						
Cell	Rh	D	C	E	c	e	V	K	k	Kp ^a	Kp ^b	Js ^a	Js ^b	Fy ^a	Fy ^b	Jk ^a	Jk ^b	Xg ^a	Le ^a	Le ^b	S	s	M	N	P1	Lu ^a	Lu ^b	Typings	Cell	Gel				
12	rr	0	0	0	+	+	0	+	+	0	+	0	+	+	0	+	+	+	0	+	+	0	+	0	+	0	+		12					
13	rr	0	0	0	+	+	0	0	+	0	+	0	+	0	+	+	0	+	+	0	0	+	+	+	0	0	+		13					
14	rr	0	0	0	+	+	0	0	+	0	+	0	+	+	0	0	+	+	+	0	+	+	+	0	+	0	+		14					
15	R2R2	+	0	+	+	0	0	0	+	0	+	0	+	0	+	+	+	+	0	+	+	+	+	+	+	0	+		15					
16	R2R2	+	0	+	+	0	0	0	+	0	+	0	+	+	0	+	0	+	+	0	+	0	+	+	+	+s	0	+		16				
17	R2R2	+	0	+	+	0	0	0	+	0	+	0	+	0	+	+	0	0	0	+	0	+	+	+	+	+	0	+		17				
18	R1wR1	+	+	0	0	+	0	0	+	0	+	0	+	0	+	+	0	0	0	+	+	+	0	+	+	0	+		18	0				
19	R1R1	+	+	0	0	+	0	0	+	0	+	0	+	+	+	0	+	+	0	+	+	0	+	0	+	0	+		19	vw+				
20	RzR1	+	+	+	0	+	0	0	+	0	+	0	+	+	0	+	+	+	0	+	0	+	+	+	0	0	+		20	3+				
21	r'r	0	+	0	+	+	0	0	+	0	+	0	+	+	0	+	0	+	+	+	+	0	+	+	+	0	+		21					
22	R1R2	+	+	+	+	+	0	+	0	0	+	0	+	+	0	+	+	+	0	+	0	+	+	0	+s	0	+		22					
Patient																																		AC

Antigen Phenotype

	Rh system				Kell							Duffy		Kidd		Lewis		MNSs				p						
	C	E	c	e	K*	k	Kp ^{a*}	Kp ^{b*}	Kp ^{b*}	Kp ^{b*}	Js ^a	Fy ^{a*}	Fy ^{b*}	Jk ^{a*}	Jk ^{b*}	Le ^a	Le ^b	M	N	S*	s*	P1	I	H	A ₁			
Patient	3+	0	0	3+	0							0	2+	3+	0													
Pos control	3+	3+	4+	3+	3+							3+	2+	3+	2+													
Neg Control	0	0	0	0	0							0	0	0	0													

* antiglobulin test required

Questions:

2. Which antibodies do you now think are present? What alloantibodies cannot yet be excluded?

3. Assume that you have an unlimited supply of reagent red cells to select for testing and that your laboratory has the following requirements for antibody identification:

- 1) An antibody specificity is confirmed when two antigen positive cells are reactive and 2 antigen negative cells are non-reactive.
- 2) An allo-antibody can only be excluded when a double dose cell is non-reactive. One such non-reactive cell is sufficient for exclusion.

Now:

- List the phenotypes of panel RBCs needed to prove your hypothesis including any cells required confirm the antibody specificities (“rule in”) and exclude any remaining alloantibodies (“rule out”).
- List the purpose of testing the cell (e.g. “rule in anti-c”, “rule out anti-Jk^a”).
- Write the cell’s Rh phenotype in modified Weiner notation (i.e. “R1R1”, “R1Rz”, etc.).

	Antigen									
Rh phenotype										Purpose of testing this cell

4. What percentage of donors is expected to be compatible with this recipient given your hypothesis as to the combination of antibodies present? Perform the calculation for European donors.